

The Science of Farming



Answers by the Veterinarian

Dr. A. S. Alexander
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"Moon" Calves

MY COW did not clean, and when I removed the afterbirth, eighteen moon calves came away with it. After a time I got some more afterbirth and some more moon calves, but the cow is sick still and the removal of afterbirth and moon calves did not help much, if any. What causes moon calves, and how may they be prevented? What is the best way to remove the afterbirth when held back by the cow?—Kentucky Farmer.

Reply—There is no such thing as a "moon" calf. Belief in such absurdities belongs in the same category with such mythical diseases as "wolf in the tail," "hollow horn," the "hooks," "lambers," "wolf teeth," etc., and the people who speak of them and treat them usually are devout believers in the signs of the zodiac. The "signs" have no bearing whatever on mundane affairs and are no longer believed in by educated people. The things you have called "moon calves" are the cysticorns, or "bubbles," of the womb and are natural, normal and necessary. They should not be removed. If they are torn off by the one who removes the afterbirth by hand infection is almost sure to follow, or the cow may bleed seriously and afterward may prove barren. The afterbirth should be removed by hand, but the man doing the work should understand the anatomy of the womb and take needed antiseptic precautions to prevent infection.

Cock Ankles

I have a large mule affected with cock ankles behind. She stands on her toes and when walking often stumbles. It was caused five months ago by backing a heavy oil wagon. If there is a cure, will you kindly tell me what it is, and oblige?—M. C. O., Madison, S. D.

Reply—When thickening and consequent shortening of the tendons has led to knuckling of the fetlocks and the condition has become chronic, nothing short of an operation by an expert veterinarian will prove remedial. The operation consists in severing the tendons, bringing the fetlocks into normal position and then giving suitable treatment until healing of the wounds has taken place. In the present stage it is possible that the operation may be avoided. Remove the shoes and trim the hoofs to normal proportions and shape. Poultice the back tendons with antiphlogistic, put on hot and cover with cotton batting and bandages. Renew the poultices each time they become somewhat dry. Continue for a week; then wash off clean and when dry put on bandages. After another week, if the knuckling still is present, blister one affected part (back tendons) with creote of cantharides after removing the hair, and in a week or ten days blister the other one in the same way. It may be necessary to blister the tendons several times at intervals of two or three weeks, but this treatment may do some good. The blister is rubbed in for fifteen minutes and the mule tied up so that the part cannot be bitten or rubbed. Wash the blister off in forty-eight hours and then apply a little lard daily for a week.

World's Future Supply of Wheat

By N. A. Clapp



Products of the Constituents of Wheat Judging the Merits of Wheat Itself

AT THE present time the subject of the possibilities of the world's supply of wheat is kept before the people of the country by some of the magazines and the commercial press, that seem prone to discuss it from several standpoints, but as yet I have not seen any comment on the subject that approaches its magnitude. It is a great subject—one difficult to calculate near the exact extent with any absolute assurance of being correct. But as many who have read some of the articles on the subject and heard the matters discussed in private are expressing feelings of apprehension of a great shortage of this important cereal, I have thought best to venture some facts that may set at rest the feelings of dark forebodings, and bring rays of hope for us and future generations.

As a student of anthropology, or the science of mankind in its entirety, it has been a pleasure to seek out what facts I have been able to in regard to the important subject of the possibilities of a livelihood for the entire masses of humanity. And also as a student of ethnology, or the science of the races of mankind, it has been a pleasure to study the characteristics of each of the races of men, and get as nearly the facts as possible as to their natural inclinations and probable achievements, which can be reckoned upon very closely as to the outcome of each in the world's work in the future.

Students at the University of Missouri college of agriculture studying wheat in the farm crops laboratory. Six hundred were enrolled in the agronomy courses last year. More care is required in the gathering of seed wheat than seed corn, and the practice of seed selection in wheat is not advanced to the degree of seed corn selection.

Starting from the early home of the Aryan races we can begin to calculate on the extent and possibilities of the world's production of wheat. If we look to the north across the fertile valleys of the Euphrates and the Tigris, up across independent Tartary into Russia and on into Siberia, we would cover more than one hundred millions of acres that can be reclaimed and made to add to the already large supply of wheat. Leave our United States, which has not nearly reached her maximum capabilities, and glance to the great country northwest of us comprising Manitoba, Saskatchewan and Alberta, and we could find fifty millions of acres well adapted to raising wheat that has as yet been untouched.

amount would begin to stimulate activities in production in all parts of the wheat growing portions of the world. But we must calculate that the annual yield mentioned would be much larger than will be required, for the reason that in the portions of the world north of the temperate zone the consumption of wheat is not large. In those countries near the equator other articles of food are used largely, and the demand for wheat will not be great.

The elements of plant food that become exhausted first are nitrogen and phosphorus. The nitrogen can be returned by the use of clover and the application of the excrement from farm animals. The phosphorus must be gathered and returned by the use of bones from animals and the ground and treated rock from the phosphate beds, the principal grave yards found in some parts of the world.

It is undoubtedly true that the phosphate beds in the south, westerly portions of the country are in the hands of syndicates, and if the wheat growers seek a supply from that source they will be required to pay well for it. In the states of Utah, Idaho and Wyoming, there are vast beds of phosphate rock, and there have been efforts made to induce congress to withdraw them from the market and hold them for the benefit of the people of the country, instead of allowing them to go into the hands of speculators. Our congressmen have not been thus far awakened to the necessities of the situation. They are willing to spend weeks and months in an apparent effort to unsat a Mormon senator, a thing they know they cannot do under the constitution, for it guarantees to every individual a right to any religious faith and religious liberty.

We have reason to believe that the present agitation of the wheat problem will bring about beneficial results. If by reason of these discussions in the press the matter can be brought to the consideration of the vast army of wheat producers of the country and each and every individual can be induced to intelligently "conserve the elements" necessary for continuous wheat production, it will tend to ease the minds of those who are apprehensive of trouble in the near future, and defer by a long period of years, the time when the people of the United States will be obliged to draw from the outside world a portion of the wheat needed to meet their necessities.

Questions of the Feed Lot

Professor Herbert W. Mumford
Illinois College of Agriculture

Getting Most Out of Pasture

WHICH is the best way to get the most out of pasture and by pasturing? My experience in buying 1000-pound feeders in the spring at \$5.00 per 100 pounds and feeding five to six months and selling at \$6.00 at home or \$6.40 in Chicago, with high-priced corn, does not mix on \$150 land. I have tried buying 700 to 800 pound steers at \$4.75 in the spring, feeding hay and corn till grass and grain from May till stalk field rough them about a year, then feed them out the following summer, but the first cost plus what their grass and feed were worth makes them cost me \$5 to \$10 more than what they could be bought for in the market. I have sixty-four head now, bought last February at \$4.75, warmed up on corn and clover hay until May 20; have had all the grass, stalks and straw they wanted. They weighed 850 pounds then (last February), and 1050 pounds now, and would bring \$4.55 at home or \$4.65 to \$4.75 in Chicago. I have corn, clover and timothy hay and straw (oats and wheat). Would it be profitable to add cottonseed or oilmeal? If so, how much per day, feed all alone, or start them with it and when turned on grass leave off the meal? F. F. FARMER, 4310 Broadway Journal, quotes hifers, poor to fair mixed, at \$2.75 to \$3.50 per hundredweight. If one should buy the \$3.50 kind or better, weighing 500 to 700 pounds, and feed them 120 days from March 1, what gain could he expect? Would they fatten up faster than steers of the same quality and weigh and show better price for corn?

Your question, "Which is the best way to get the most out of pasture land by pasturing cattle?" is an extremely difficult one. What would prove the most profitable one year might not another. We have known some persons to get very satisfactory results per acre by buying this feeding cattle in the spring, or possibly the fall before, wintering them as cheaply as possible, keeping them thrifty and growing, turning them to pasture and selling them in the fall as feeders without any attempt to flesh them up with grain feeding. Stock holders such as you describe are also bought for the same purpose, but must, of course, be purchased much cheaper. They can be matured in shorter time. Hifers such as you describe put in the feed lot and fed corn with good roughage and possibly some cottonseed meal ought to gain from a pound and a half to two pounds and a half per head per day, depending, of course, upon the weight and condition of the cattle and the amount and character of the ration fed. Concerning the feeding of the sixty-four head now on hand, I think it would certainly pay to feed some cottonseed meal unless the quality of your roughage is good and pretty nearly pure clover hay.

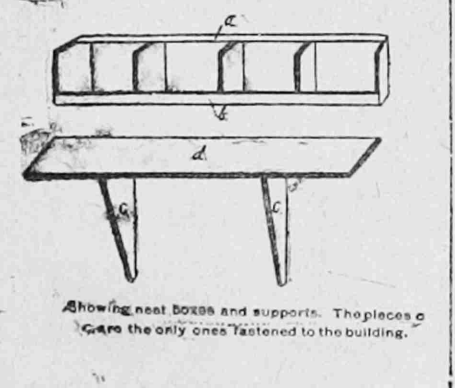
The Dual Purpose Cow

THE difference between the dual purpose cow and the dairy cow is just the difference between a machine that is made for its purpose and one that is not. What would you think of a man who would go out to his field to cut grass with a sewing machine?—Ex-Governor W. D. Hoard of Wisconsin.

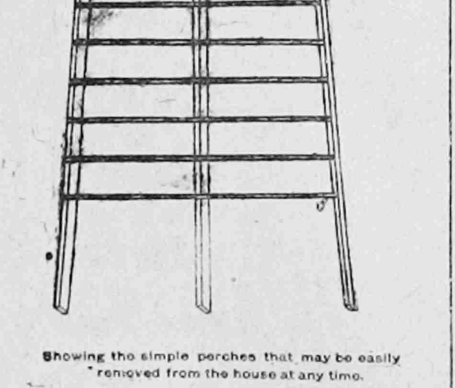
MISCELLANEOUS NOTES OF INTEREST

Poultry House Fixtures

WHEN the poultry house is being erected the inside fixtures should be arranged to facilitate the cleaning and disinfecting of the house for lice. To do this the roosts should be made so they can be easily removed and taken out of the house at any time. The roosts recommended by the Department of Agriculture as shown in the accompanying illustration.



Showing roost boxes and supports. The poles are the only ones fastened to the building.



Showing the simple perches that may be easily removed from the house at any time.

companioning cut are made with this view. By not being nailed to the sides of the building they can be taken out whenever it is necessary to disinfect them. By being low the fowls of the heavier breeds can easily fly up on them and they will not injure their feet in jumping down, as they frequently do when the roosts are high.

As to the matter of nests, the same rule will hold. The cut shows a good way to construct nests so they can be removed for cleaning. Old boxes are all right for making the nests, and they can be set on the shelf which has supports fastened to the wall. It is a constant fight to keep the poultry free from lice and mites and by having things arranged properly the work can be made easier.

In nature's capricious lap are hid the elements of food, clothing and shelter of the human race, besides untold millions of gold, silver and other metals which she refuses to give up except in compliance with her laws.—A. B. Stokely, president Chicago Great Western railway.

Machine Not Complete Success

A SUCCESSFUL milking machine, satisfactory in all points should mean much to the dairy industry. At present the small quantity and poor quality of farm labor available in many sections make dairying there impracticable on a large scale, for with uncertain help the farmer can keep only so many cows as he can handle alone when need arises. If a machine is perfected that will take the place of any considerable part of the necessary hand labor in caring for dairy stables, it will mark a long step in advance for dairying. The production of milk on many farms could then be raised from an incident to a business, and it is only as a business, carefully studied and properly managed, that dairying can be an economic success.

Machines are on the market that are at least mechanically successful—that is, they do milk cows, but before they can be recommended without many qualifications, much more than this must be known. The work must not only be done, but to be considered successful it must be done as well or better than it can be done by hand, and more cheaply, without decrease in quantity or lowering of quality of the milk and without immediate or remote ill effect upon the animals. The advent of these machines has placed on dairy investigators the duty of determining their good and bad points.

Spend less time in envying the success of your neighbors and a little more in trying to get there yourself.

Foreign Live Stock Notes

THE grading up of sheep stocks in South Africa by drafts from noted Australian flocks has been noted. Since the wool output of wool has been doubled, and in a few years South Africa may easily become one of the principal sources of our wool supply.

The sheep markets are not particularly brisk, and prices both for store and fat consignments have shown a tendency to decline. Anthrax continues to be the most disturbing feature in the returns under the diseases of animals act published by the board of agriculture. This dread disease is widespread and outbreaks are becoming more common, and though every precaution is taken for the destruction of the bodies of infected animals, it is evident that more drastic measures will be necessary to keep it in check.

Grass-fed cattle are arriving in the markets in increasing numbers, but the majority are very imperfectly finished. Buyers, however, are not in a position to pick and choose, and all classes of animals sell at good prices. The grazier has a double object in marketing his bullocks at this early period—he not only benefits by the high prices by clearing his first supplies he will be able to re-stock his pastures and have another lot ready for the butcher before harvest. With this way he hopes to increase his profit, though he has to pay dearly for store stock, especially for those in advanced condition, and that class alone is suitable for his purpose.—London Live Stock Journal.

Blasting Bowlders

PROFESSOR STEWART, chief of the division of engineering at Minnesota agricultural college, says that ordinarily it is not economical to break rocks by placing explosives on top of them, a method requiring a very high grade and large quantity of dynamite. In such case, if the bowlder is hard the attempt will often result in failure. The efficient way to break a bowlder is to increase by laying the explosive in a depression in the rock and covering it with wet clay.

Another method is to make a hole with a long auger or spade through the earth to a point under the center of the rock and place the explosive there, tamping the hole full of dirt afterward. This method is much more satisfactory than the first, though it many times throws the rock out of the ground unbroken.

The surest method, and the one requiring the least explosive, is to drill a hole in the rock and tamp in the charges with damp clay. The proper plan, where a large number of rocks are to be broken up, is to do a little experimenting. Try each of these methods, keeping an account of the time required to prepare the charge, the cost of explosive used and the results, and from these determine the best method to use with the rocks in your quarry. With high-priced explosive and cheap labor it will ordinarily be most economical to drill the rock. If labor is scarce and high priced it may be more desirable to use a larger quantity of explosive under the rock as suggested above.

Treating Sidebone

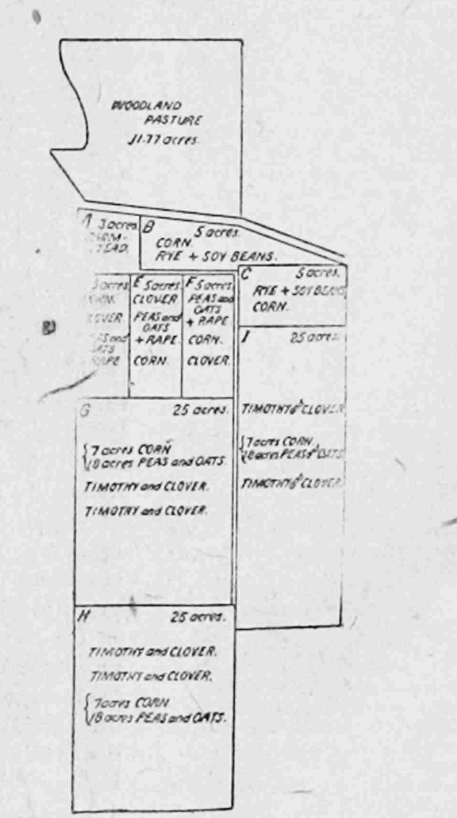
SIDEBONE is a disease that comes on a horse on the outside of the front foot just above the hoof. There is a cartilage there, probably used to give somewhat of a spring to the heel. In a healthy horse, you place your finger there and you can spring that cartilage, but sometimes that turns into sidebone. In young growing colts, if the feet turn out on the outside it causes inflammation, a bony growth is thrown out, and we have sidebone. Then again, a horse may become bruised there by another horse stepping on him, or something, in the field, and it causes sidebone. The sidebone may not do any particular harm where it is soft, around your farm, but when you get that horse on frozen ground or in the city he gets lame. We cannot treat it any more than any other bone disease. All we can do is to put on some kind of irritating liniment and irritate it and bring the blood there. It is like bone spavin.

You cannot cure bone spavin. All you can do is to put on some irritating liniment and get those bones grown together and your horse goes without limping. He goes with a little jerk, but not lame. You can take it off so it gets smooth to the outside, but if you will dissect it you will find they have grown together.

"It will do the professional students good to be educated side by side with those who expect to obtain a living by labor."—Hon. Justin S. Morrill.

Draw a Plan of the Farm

IN ORDER to properly arrange crop rotations it is best to draw a plan of the farm and arrange it on paper first, and then put it into actual practice. The man who makes the greatest success is he who plans his work ahead. The following farm plan is drawn by



Professor W. J. Spillman of the Department of Agriculture at Washington and is of a ninety-acre farm and permits of a single road to every field on the farm. The double lines represent the road.

Undocked Lambs Filthy

THE animal husbandry division of the department of agriculture of this state suggests the docking of lambs at an early age, because those undocked not only present a filthy condition when turned out to pasture, but soon get into an insanitary condition that invites disturbance from flies. Docked ewe lambs are also shown by the station experiments to develop into better and surer breeders. A large percent of undocked ewe lambs utterly fail to breed. On the market the docked sheep, being slightly and clean, bring 25 or 50 cents a hundred pounds more than the undocked. The market demands clean, wholesome-looking stock. If a distinguishing mark in sexes is desired by the farmer an ear can be clipped on one sex. Such a wound will heal in a day or two and will not detract from the cash value on the market.

DAIRY COW A MARVEL

By D. K. LIVINGSTON

ALL improved breeds of animals are the result of man's genius. It is the nature of any cow to produce a large quantity of milk and establish such records as we read of from time to time; her natural duty is to give sufficient milk to nourish her calf for a few months each year. Neither is it natural for the animals we designate as beef breeds to carry such an enormous amount of flesh. Nature intended the formation of flesh solely for warmth and protection of the body, with no thought of the commercial value of fat and flesh. Years ago, perhaps thousands, all cattle were the same, just as we know the buffalo, the deer and the elk to-day. It was not until man undertook their domestication that the various breeds were formed and a system of evolution inaugurated which has brought about the present variety and assortment of breeds. The dairy cow has been the result of feeding and selection for a definite purpose; so that, by selecting the best milkers and giving them proper feeding and care, it has been possible to bring to their present high state of development the different breeds of dairy cattle. However, while they are apparently fixed in type and characteristics there is always a tendency to revert to some remote ancestral trait. If the animals were left to themselves the good

work of generations of progressive breeding would be lost sight of. There is no breed of animals that will go on improving without constant assistance and the directing hand of man. As civilization advanced and the population became more dense, the demand for milk and its products has increased, and the dairy cow by selection and feeding has developed to meet this demand. Obeying that universal law that always moves along the line of least resistance, the dairy cow has taken on the form best adapted to enable her to produce a heavy flow of milk with the least expenditure of energy. Thus we have what is known as the dairy type of cow, which we find in all dairy breeds of cattle, i. e., Jersey, Guernsey, Ayrshire and Holstein. The Shorthorn was at one time called a dairy breed or the dual purpose cow, but the show yard judges have shown such a preference to the breed as a beef animal that it is no longer known among the heavy milks. The Wisconsin experimental station tried for several years, under Professor Carlisle's instruction, to prove that the large dual purpose cows were the most profitable for the Wisconsin farmers. After calculating the value of food consumed and allowing market prices for the milk, it was shown conclusively that

the dual purpose cow could not be strongly recommended. In the report of the Wisconsin station for 1906 it is stated: "At the present time we find it practically impossible to breed cows of marked capacity for dairy production among the Shorthorn breed." Two cows stand in the same stable; both are fed the same ration, yet one will extract from the food twice the amount of butter fat. This fact is seen very frequently in all herds. What is the inner quality whereby one cow can produce so much more than the other from the same amount of food? It is hard to find the right name for it, but it may be called "dairy quality." Now certain breeds of cattle are distinguished for this quality; they have the power to accomplish this work in the proportion and perfection by reason of having been bred for that purpose from long lines of ancestors of like quality. Thousands of farmers will spend their time and money trying to make cows of beef breeding do dairy work. Does it not seem reasonable that in a breed where dairy traits have been the sole object of the originators, whose work has been handed down or rather carried on for several centuries by generation after generation of successful breeders, that the tendency to produce animals of a profita-

ble dairy type is much more firmly fixed, and the power to transmit these qualities is greater in the pure-breeds than the animals that have been bred indifferently? It is just as easy for a man to serve two masters as it is for a cow to please both the butcher and dairyman. The functions of meat and dairy production are opposite factors. The cow will either cleave to the one or yield to the other. The modern dairy cow is the marvel of the twentieth century. When cows are capable of producing nearly their own weight of butter annually it is certainly a wonderful performance. I. e., the Holstein cow Sara Jewel Hengeveld 30 produced 26½ pounds of butter in seven days, 121 1-3 pounds in thirty days; her mother produced a little over 100 pounds of milk in one day and 6½ pounds in seven days last summer. There is no reason why this record cannot be beaten. The whole history of the advanced dairy cow is a constant recurrence of records established and broken down. While we do not hope to see the average cow producing her weight in butter and this record taken as the standard of excellence for the farmers' herd, yet we have convincing proof of what can be accomplished by a little care and an intelligent selection, and I hope to see the time when every farmer is keeping a record of his cows and insisting upon a certain standard for every cow in his herd.